# PHYSICAL CHARACTERIZATION OF LONG WEAR FOUNDATIONS

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The current long wear face make-up products typically comprise of silicone resin or silicone film former and fillers to provide excellent attributes in sebum and sweat resistance to maintain the evenness of make-up for all day long. In order to evaluating the sebum and sweat resistance performance of the current marketed products such as Estee Lauder Double Wear (ELDW), Revlon ColorStay (RCS), and Lancôme Teint Idole Ultra (LTIU), we utilized the contact angle measurement to study the surface energy of the selected foundation films deposited on bio skin as well as the spreading and wetting of artificial sebum/sweat and water droplets on these films as shown in Fig 1. In addition, the tolerance of these foundations under sweat and sebum was evaluated by optical effect and the integrity of the films after exposing to sebum/sweat solutions directly for 8 hrs. The results from these measurements were found to be either dependent of the film former/resin structure and concentration or of the filler types which have strong influence to the performance of the foundations under sebum and sweat condition. In addition, the texture and sensory performance mapping of these long wear foundations were evaluated by rheology and tribology (**Fig.2**). The rheological behavior of these foundations will be discussed in term of the effect of solid contents and type of fillers used in the foundation formulations.

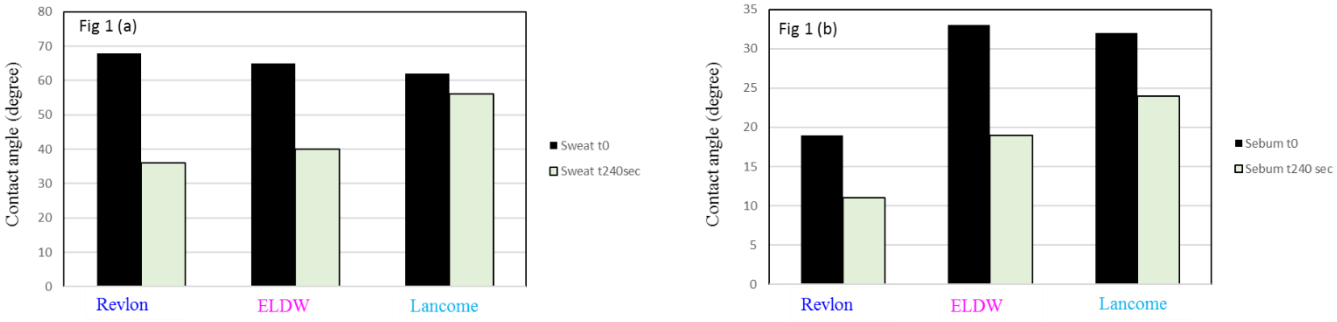


*Figure 1 – Contact angle measurement of sweat (a) and sebum (b) on each foundation.*

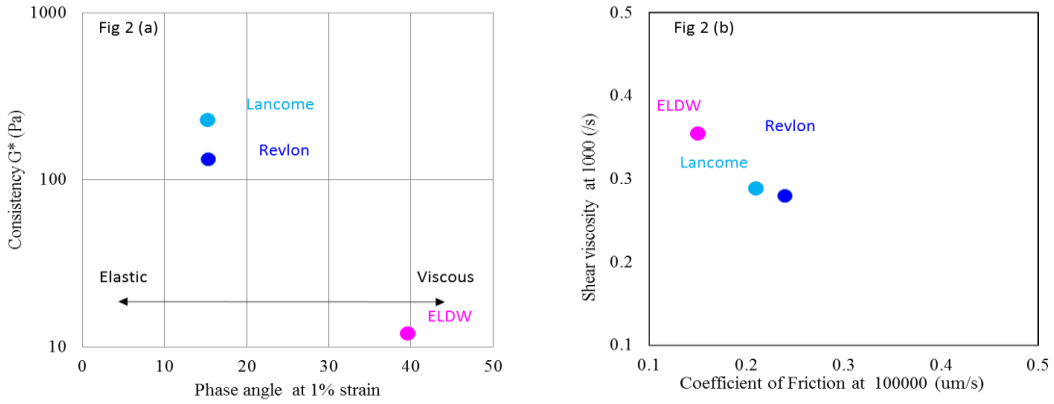


*Figure 2 – Rheological mapping of three foundation products: ELDW, RCS and LTIU. Consistency against phase angle at 1% strain (a). Shear viscosity against coefficient of friction from Tribology (b)*